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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,182	09/17/2003	Yasuhiro Katsu	PC25302A	8582

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PFIZER INC.
PATENT DEPARTMENT, MS8260-1611
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EXAMINER	
HUANG, EVELYN MEI	
ART UNIT	**PAPER NUMBER**
1625	

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/667,182	KATSU ET AL.	
	Examiner	Art Unit	
	Evelyn Huang	1625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 12-14* is/are rejected.

7)☒ Claim(s) *10 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-13 are pending.

There are two claims 12. The claims have been renumbered as 1-14 according to Patent Rule 1.126.

Duplicate Claims

2. Claim 2 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Objections

3. Claims 8, 9 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on another multiple dependent claim. See MPEP § 608.01(n).

4. Claim 9, last line, 'ispiperidinyl' should be 'is piperidinyl'.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9, 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Definition of R3, 'at least one' in 'the alkyl group in R3 is substituted with at least one substitutent selected from the group consisting of substituents α ' is unclear in that the upper limit has not been described. Does applicant intend to claim a fully substituted alkyl (e.g. C10 alkyl substituted with 21 aryl and/or heterocyclic substituents) ?

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant method for the treatment or prevention of disease conditions mediated by 5-HT4 receptor activity reaches out to as yet unidentified diseases/conditions/activities, the description of which is not found in the specification. The mediation of 5HT4 receptor involves agonism, antagonism and others, which leads to opposing and conflicting conditions/disorders. A full description of the treatment or prevention of disease conditions mediated by any 5-HT4 receptor activity is not found in the specification.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9, 12-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The specification is enabling only for the compounds of claims 10, 11, and the compounds wherein the alkyl of R3 is substituted by 2 substituents α, and heterocyclic being an unsaturated monocyclic group. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. ***.

a. *Nature of the invention.*

The instant invention is drawn to a imidazo[1,2-a]pyridine compound and its method of treating or preventing a disease condition mediated by 5-HT4 receptor activity, the specific diseases are recited on pages 1-3, 6 of the specification.

b. *State of the prior art and the level of the skill in the art.*

The 5-HT4 receptors, and some of the agonists and antagonists thereof, are reviewed by Eglen (PTO-1449). The diseases or conditions requiring a 5-HT4 agonist are shown to be distinct from those requiring a 5HT4 antagonist. A nexus between the activation or inhibition of 5-HT4 receptors and the treatment or prevention of any or all of these diseases have not been fully established (Barnes et al. Neuropharmacology 38(1999) 1083-1185, 1118-1125). For example, while a number of reports have indicated the activation of 5-HT-4 receptors facilitates cognitive performance (and a 5HT4 agonist would be indicated), there are currently no reports concerning whether selective 5-HT4 receptor ligands modify cognitive performance in man. While 5-HT4 receptor is implicated in anxiety (wherein an 5-HT4 antagonist would be indicated), there is apparent disagreement regarding the precise role that the 5-HT4 receptor plays (Barnes, page 1123-1124).

While some the recited disease may be treatable, the prevention of these diseases is not feasible as the criteria to predict the subjects at risk of having these diseases have not been established.

The level of the skill in the 5-HT4 receptor ligand art is high.

c. *Predictability/unpredictability of the art.*

The high degree of unpredictability is well recognized in the 5-HT receptor ligand art. A slight change in the structure of the compound would drastically alter its affinity and selectivity (Lopez-Rodriguez et al. Bioorganic & Medicinal Chemistry. 7 (1999) 2271-2281, PTO-1449, pages 2273-4, Tables 1-2). One of ordinary skill in the art would therefore have no basis to extrapolate the results to compounds of dissimilar structures.

d. *Amount of guidance/working examples.*

How to make

Preparation of example compounds is limited to compounds wherein R3 is substituted with one or two substituents α and wherein the heterocyclic of α is piperidinyl, morpholinyl or tetrahydropyranyl.

An example of a compound wherein the alkyl of R3 is fully substituted (having up to 21 aryl and/or heterocyclic substituents) and a compound wherein the heterocyclic is a heteroaromatic or a bicyclic unsaturated heterocyclic are not found in the specification.

How to use.

The procedures for the 5-HT4 receptor binding assays are described on pages 23-26 while the procedures for agonist-induced cAMP elevation in transfected HEK383 cells and the I_{HERG} assay are described on pages 26-36 of the specification. No results are shown. No in vivo procedures are described.

e. *The breadth of the claims.*

Applicant's assertion that the structurally diverse compounds (including those wherein the C1-10 alkyl of R3 is substituted by up to 21 substituents α, and those wherein heterocyclic is a heteroaromatic or a bicyclic unsaturated heterocyclic ring) would be effective in treating or preventing any disease condition mediated by 5-HT4 receptor activity (including the as yet unidentified diseases/conditions, the conflicting and/or opposite conditions treatable only with an antagonist or an agonist, the myriads of diverse disorders/diseases within the central nervous system, or any of the neurological diseases of different origins), does not commensurate with the scope of the objective enablement, especially in view of the high degree of unpredictability in the art and the limited working examples (paragraphs b, c, d above).

f. *Quantitation of undue experimentation.*

In view of the high degree of unpredictability in the art, the absence of working examples and the fact that the breadth of the claims does not commensurate with that of the objective enablement, the disclosure as presented would not allow one of ordinary skill in the art to make and use all the invention as claimed without undue experimentation (paragraphs b-e above), especially when the nexus between the activation or inhibition of 5-HT4 receptors and the treatment or prevention of any or all of these diseases have not been fully established

Conclusion

8. Claims 10, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Uchida (6624162) discloses a 5 HT4 receptor binding piperidinyl-imidazopyridne compound similar to the instant. Uchida's piperidinyl is substituted by hydrogen, alkyl or alkoxyalkyl, whereas the alkyl on the piperidinyl in the instant compound is required to be substituted by one or two substituents α (Uchida's alkoxy has been excluded from the instant definition of α). Absent is the motivation to modify the prior art compound to arrive at the instant invention.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evelyn Huang whose telephone number is 571-272-0686. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Evelyn Huang
Primary Examiner
Art Unit 1625